USAF ETAC TN 70-5

ENVIRONMENTAL Technical Applications Center

TECHNICAL NOTE
70-5

ETAC

A SELECTED ANNOTATED BIBLIOGRAPHY OF ENVIRONMENTAL STUDIES OF IRAQ, JORDAN, LEBANON, AND SYRIA (1960–1969)

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Purpose

USAF ETAC Technical Notes are published by the USAF Environmental Technical Applications Center to disseminate aerospace sciences information to units of the Air Weather Service. Subject matter contained in these Technical Notes, while pertinent, is not deemed appropriate for publication as Air Weather Service Technical Reports which are confined to those studies, reports, techniques, etc., of a more permanent and specific nature. Technical Notes include such material as wing seminar listings, bibliographies, special data compilations, climatic studies, and certain USAF ETAC project reports which may be of special interest to units of the AWS organization. This series is published under the provisions of AFR 6-1 and AWSR 80-2, as amended.

Distribution

Technical Notes will normally be given the same distribution as AWS Technical Reports which includes all AWS units through detachment level. Additional special distribution may be provided certain issues when the subject matter is believed to warrant wider dissemination within the scientific community. A smaller distribution of the Notes will be made when the area of interest and applicability is considered limited.

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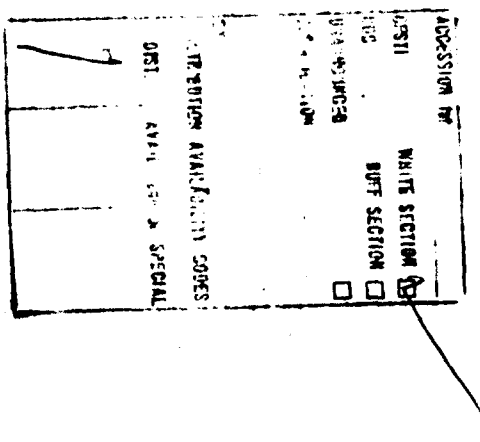

Preface

One of the primary functions of the Technical Information Section of the USAF Environmental Technical Applications Center (ETAC) is to locate reference material requested by the various governmental agencies and those civilian organizations completing government contracts. The requests are generally initiated to aid in the solution of specific problems. However, many of these bibliographies represent a substantial listing of pertinent sources which, having been compiled, could prove very beneficial to other researchers with similar interests in subject matter or area of coverage. It is with this in mind that USAF ETAC publishes certain reference listings such as this bibliography. It is believed that, by publication and distribution of these consolidated reference lists, much of the time-consuming reference-searching of the researcher can be eliminated.

Inclusion of an item in this listing does not constitute an indorsement of the information included therein by the DOD, USAF, Air Weather Service, or USAF ETAC. It also must be noted that references selected for this bibliography should not be construed as being the best or only references available as many excellent papers, reports, etc. were no doubt overlooked during the limited search period allotted the author for this project.

The valuable assistance obtained from personnel of the various libraries in the Washington, D.C. area is gratefully acknowledged; their efforts facilitated the task of reference searching for this publication.

INTRODUCTION

This bibliography was compiled as a by-product of the regular reference-searching that is one aspect of the normal work-load of the Technical Information Section, USAF ETAC. Many of the abstracts herein were taken from the publications themselves, many others, or parts of abstracts, from Meteorological and Geoastrophysical Abstracts (Am. Met. Soc.), and others were prepared by members of the Technical Information Section of USAF ETAC. The individuals below are credited with the preparation of one or more abstracts shown in this publication.

Initials		Initials	
AHK	Ajmal H. Khan	ILD	Isadore L. Dordick
ALS	Alvin L. Smith, Jr.	MLW	Marie L. Weight
BJG	Boris J. Gavrisheff	MR	Malcolm Rigby
DBK	Dov B. Krimgold	RB	Ronald Baker
DLB	Dennis L. Boyer	RES	Robert E. Stadjuhar
EK	Elemer Kiss	SN	Sylvia Nowinska
EZS (ES)	Evelyn Z. Sinha	VJC	Vincent J. Creasi

Since only a limited time was available to the authors to compile this reference listing, it is very possible that, in some cases, an author's best work is not the item we have included. Furthermore, some important papers, reports, summaries, etc., undoubtedly have been completely overlooked in our search and we offer our apologies for such unintentional oversights.

All items are numbered consecutively throughout the bibliography and arranged alphabetically by author into five segments: General References, Iraq, Jordan, Lebanon, and Syria. Those studies not available in English have the applicable language entered opposite the abstract in the left-hand margin. For the readers convenience, a subject index is provided. Each item lists a source at which the publication may be located either by library card catalogue number, AD number, or other indicator. Generally, most of the listed items were located within the Washington, D.C. area. Abbreviations denoting the various libraries are identified under Index to Source Symbols below.

Index to Source Symbols

Census	Census Bureau Library, FOB 3 Suitland, Md.
DAS	Atmospheric Sciences Library ESSA, Silver Spring, Md.
DAS P col	Periodical Collection Atmospheric Sciences Library Silver Spring, Md.
DLC	Library of Congress
DNAL	National Agricultural Library Dept. of Agriculture Beltsville, Md.

Index to Source Symbols (cont)

DMAL (DC)	Independence Av. between 12th & 14th St., SW Washington, D.C.
DMHO	Dept. of Navy Hydrographic Office
Foreign Branch	Foreign Area Section Environmental Data Service ESSA, Silver Spring, Md.
IPE	Information & Publications Branch USAF ETAC

Certain departments within the governmental structures of the subject countries issue periodic publications concerning the Meteorological or Climatological parameters. The publications listed below are some of these periodicals.

IRAQ

Meteorological Department

Monthly publication:

"Monthly Climatological Data," 1937-

Occasional publications:

"Publication Nos.," 1-14

JORDAN

Meteorological Service

Monthly publication:

"Climatological Data," 1955-

Central Water Authority

Annual publication:

"Rainfall in Jordan," 1953-

Dept. of Statistics

"Quarterly Bulletin of Current Statistics"
1962- to date

LEBANON

Meteorological Service

Monthly publication:

"Climate of Lebanon-Monthly Statistical Bulletin,"
1953-

LEBANON (cont)

Climatological Service

Monthly publication:

"Bulletin Climatologique Mensuel," 1954-

SYRIA

Meteorological Department

Monthly publication:

"Monthly Climatological Data," 1955-

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Winds, Surface	29, 45	49, 57	--	--	--
Winds, Upper Air	19	--	--	--	--

PREVIOUSLY PUBLISHED BIBLIOGRAPHIES

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The following excellent bibliographies pertaining to the climatology or the environment of the Middle East, in general, or the countries of Iraq, Jordan, Lebanon, and Syria, specifically, were noted during the reference-searching by the authors and are listed below for the convenience of the reader.

1951

Kramer, Harris P. Selected Annotated Bibliography on the Climatology of the Near East, AMS, Meteorological Abstracts and Bibliography, Vol. 2, No. 5, May 1951, pp 373-404. 240 references. DAS M(016) A512m

Kramer, Harris P. Climatology of the Middle East and Central Asia, A Selected Annotated Bibliography, AMS, Meteorological Abstracts and Bibliography, Vol. 2, No. 6, June 1951, pp 453-480. 194 references. DAS M(016) A512m

Kramer, Harris P. A Selective Annotated Bibliography on the Climatology of Northeast Africa, AMS, Meteorological Abstracts and Bibliography, Vol. 2, No. 10, October 1951, pp 831-865. 254 references. DAS M(016) A512m

1952

Gleeson, T. A. A Bibliography of the Meteorology of the Mediterranean, Middle East, and South Asia Area. Florida State Univ., Dept of Meteorology, Contract AF 19(122) 466, Appendix to Science Rpt., No. 1, 1952, 37 p., DAS M82.1/262 F6362

1953

Dost, H. Bibliography on Land and Water Utilization in the Middle East, Wageningen Agricultural Univ. College, Wageningen, Netherlands, 1953, 115 p. DNAL 241 D74

1957

Peterson, A. Delbert. Bibliography on the Climate of Iraq. U.S. Dept. of Commerce, Weather Bureau, WB/BC-32, Washington, D.C., 1957. 50 annotated references. AD 665182

Peterson, A. Delbert. Supplement to the Bibliography on the Climate of Iraq. U.S. Dept. of Commerce, Weather Bureau, WB/BC-35, Washington, D.C., July 1957, 4 p. 13 supplementary references. AD 665185

Patai, Raphael. Jordan, Lebanon, and Syria: An Annotated Bibliography. HRAF Press, Behavior Science Bibliographies, New Haven, Conn., 1957, 28 p. DLC Z 3013.P3

1958

Grimes, Annie E. Bibliography of Climatic Maps - Eastern Mediterranean. Weather Bureau, WB/BM-1, Washington, D.C., 1958, 8 p. 30 references. AD 665173

Roman, Simon J. Bibliography of Climatic Maps for Iraq. U.S. Dept. of Commerce, Weather Bureau, WB/BM-5, Washington, D.C., 1958, 16 p. 53 references. AD 665176

1960

Grimes, Annie E. Annotated Bibliography on Climatic Maps of Lebanon. U.S. Weather Bureau, Washington, D.C., 1960, 11 p. Lists 45 maps. AD 664708

1961

Carraway, Darthula M. Annotated Bibliography of Climatic Maps of Jordan. U.S. Weather Bureau, Washington, D.C., January 1961, 10 p. 33 references. DAS M(016) U587bjo Maps. AD 664718

Grimes, Annie E. Annotated Bibliography on the Climate of Lebanon, sponsored by Air Weather Service Climatic Center, USAF., Washington, D.C., 1961, 42 p. 125 references. DAS M(016) U587ble. AD 664698

Wallace, J. A. An Annotated Bibliography on the Climate of Jordan. USDC, Weather Bureau, Foreign Area Section, WB/BC-49, Washington, D.C., 1961, 33 p. 95 references. AD 664727

1963

Weight, Marie L. Annotated Bibliography of Climatic Maps of Syria. U.S. Weather Bureau, Washington, D.C., May 1963, 22 p. 66 titles annotated. DAS M(016) U587 WB/BM-57. AD 660826

1970

Creasi, Vincent J., et al. A Selected Annotated Bibliography of Environmental Studies of Israel (1960-1969), USAF ETAC, Technical Note 70-4, Washington, D.C. 20333, April 1970, 51 p. 119 references. AD 705199

A Selected Annotated Bibliography of Environmental Studies of Iraq, Jordan, Lebanon, and Syria (1960 - 1969)

General References

1. Agi, Michael, Wetter und Klima im Ostlichen Mittelmeerge-biet unter besonderer Berucksichtigung des Zypertiefs [Weather and Climate in the Eastern Mediterranean Considering Especially the Cyprus Low] Inst. fur Meteorologie und Geophysik der Freien Universitat Berlin, "Meteorologische Abhandlungen", Band LXXV, Heft 4, Berlin, 1968, 117 p. DAS M09.22 B515n.

German

...This paper discusses cyclonic activity in the eastern Mediterranean region. Statistical investigations of cyclonic activity in this region conducted from 1954-1964 are included. Summarized climatological conditions are also given. (DLB)

---

2. Ardekani, H., Synoptic Situations on Mar 9-12, 1962 for Iran and Neighbouring Countries. World Meteorological Organization, Technical Note No. 69, 1965, pp 225-233. Figs. DAS M(06) W927p.

...The period, Mar 9-12, 1962, was chosen to study the movement of locusts in the region of Iran in relation to the synoptic period. An analysis was undertaken at the Forecasting Office at Mehrabad Airport, Tehran, of surface and upper air maps for an area extending from 25°N to 45°N and from 20°E to 60°E. Midday charts were drawn for the surface, 850, and 700 mb. At the two upper levels, both streamlines and contours were drawn. Some of the charts are reproduced and a detailed account is given of the progress of the synoptic situation. The rainfall and temperature distribution is also discussed. (RB)

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3. Ashbel, Dov, Climate of the Great Rift-Arava, Dead Sea, Jordan Valley. Hebrew Univ, Jerusalem, 1966, 228 p, maps. DLC QC990.P3A927.

...Consists of a general description of the climate of the Jordan Valley area. A number of parameters have been tabulated: mean monthly temperature (wet bulb and dry bulb); relative humidity and absolute relative humidity; evaporation; sunshine (hrs); rainfall and rainfall percentage frequency. (DLB)

---

4. Ashbel, Dov, Frequencies of Temperature Thresholds (Hours per Month) and Maximum-Minimum Graphs. Jerusalem, Hebrew Univ, 1967. Unpaged. Numerous charts and tables Text in English and Hebrew. DAS M24.36 A819fr.

...Contains graphs of daily mean, maximum, and minimum plus tables of frequencies for varying periods at ~ 100 listed stations mostly in Israel, and a few in Turkey, Syria, Iraq, and Lebanon. (DBK)

---

5. Ashbel, D., Rain and Snow in the Near East (Turkey, Iraq, Syria, Lebanon, Jordan, Israel and Egypt) 1875-1967, Hebrew Univ, Jerusalem, 1968, 124 p. 10 figs. IPB Files.

...Consists of summarized precipitation statistics for the Near East. Included are: mean monthly rainfall; days with rain per month; and monthly and annual rainfall, by year. A map of average annual precipitation (mm) is also included. (DLB)

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6. Ashford, O.M., Agroclimatology in the Near East; Technical Conference in Beirut, World Meteorological Organization, WMO Bulletin 14(2), pp 115-118. Apr 1965. Figs, refs. DAS M(05) W927w.

...Reports on the technical conference held in Beirut, Sep 28-Oct 9, 1964. The first part of the conference was devoted to lectures and discussions on the importance of agroclimatology in general and on the particular methods developed earlier. The need for taking full account of climatological factors in agricultural planning and operating was stressed. The methods of analyzing precipitation and temperature data were described and special attention was also given to methods uced in studies of the water balance. Practical exercises were conducted. (ES)

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7. Atlas of the Arab World and the Middle East. (With an introduction by C.F. Beckingham), London, Macmillan, 1960, (69 p), Maps (in color) pp 2-40. DAS 912.1 D623at and DNAL Folio 278.185At6.

...This atlas contains a series of maps of North Africa and the Middle East. In addition to the physical/political maps, climatic maps are also included. The distribution of the mean annual precipitation over the entire area is shown. Separate maps show: precipitation, temperature, and winds in Jan and Jul in the entire area; mean annual precipitation in North West Africa, the Nile Region, Syria, northern region of the U.A.R., and Lebanon. Maps of mean temperature in Jan and Jul for the latter group are included; mean annual precipitation in the Jordan Region; climatic maps of Iraq show mean annual precipitation, mean maximum temperature in Jul, mean minimum in Jul and mean maximum and minimum temperature in Jan. Climatic maps of the Arabian Peninsula and Iran show mean annual precipitation in these regions. (EZ3)

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8. Boulanger, R., The Middle East: Lebanon, Syria, Jordan, Iraq, Iran. Trans. by J.S. Hardman, Hachette, Paris, 1966, 1060 p, maps. DLC D843.M681 1966.

...Not available for abstracting.

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9. Boyko, H., Ancient and Present Climatic Features in South-West Asia and the Problem of the Antique Mounds of Grapes ("Teleilat el-' Anab") in: The Negev Inst. J. of Biometeor., Vol. 10, No. 3, 1966, pp 223-231. DAS M(05) I61in.

...Compares the South-West Asia climate of the present with that of 2000 years ago. A number of elements are compared: precipitation (days with rain), winds, thunder, and hot spells. (DLB)

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10. Brice, William C., A Systematic Regional Geography Vol. VIII South-West Asia, University of London Press Ltd., London, 1966, 448 p. DLC G126.B67 Vol. 8.

...Contains a section on the physical geography of South-west Asia. Within this section are diagrams, charts, and maps on the climate of the area. In addition to these graphic climatological depictions, there are general descriptions of the area environment. (DLB)

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11. Burdon, David J. and Safadi, Chafic, Ras-El-Ain: The Great Karst Spring of Mesopotamia, "Journal of Hydrology", (Amsterdam) Vol. 1, No. 1, 1963, pp 58-95. DLC GB651.J6.

...Contains extensive data on precipitation in addition to spring discharge information. Regional precipitation (annual) is given on a map covering 34°N to 39°N and 34°E to 44°E. (DLB)

---

12. Butzer, K.W., Dynamic Climatology of Large-scale European Circulation Patterns in the Mediterranean Area, Meteorologische Rundschau, Vol. 13, Heft 4, Jul/Aug, 1960, pp 97-105. DAS M(05) M587.

...The author sketches the major dynamic climatological features of each large-scale weather pattern for the Mediterranean area. This study is intended to be an aid in short-range forecasting. The Middle East area is given as an area of secondary cyclogenesis. (DLB)

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13. Cressey, George Babcock, Crossroads: Land and Life in Southwest Asia, N.Y., Lippincott, 1960. 593 p. Numerous figs and photos, Bibliog at end of each chap, tables. DAS 915.6 C922cr.

...An illustrated textbook on the economic and human resources of the Near or Middle East. Water figures heavily in all of the chapters. The chapter on climate (pp 93-117) includes a discussion of the Mediterranean-type climate of the region, pressure and air masses, local winds, temperature, precipitation, water balance and climatic regions, and some tabular data for 37 representative stations. Each chapter on the separate regions named above also contains an extensive section on climate with climograms for a number of stations within the country or area. The climograms show the extremes of temperature and the monthly potential evapotranspiration as well as the means and daily range of temperature and average monthly precipitation. (MR)

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14. de Brichambaut, G.P. and C.C. Wallen, Une étude d'agroclimatologie dans les zones arides et semi-arides du Proche-Orient. [A Study of Agroclimatology in Semi-Arid and Arid Zones of the Near East] WMO Tech. Note, No. 56, 1963. DAS M(06) W927p.

French

...General description of climatic conditions are given. This study devotes special attention to rainfall and the length of the rainfall season. (DLB)

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15. Dodd, A.V., Some Aspects of the Climate of South-West Asia. Met. Mag., Vol. 94, No. 1110, Jan 1965, pp 33-47. DAS M(05) G786n.

...Consists of a general description of the climate of southwest Asia. The area is defined as including Iran, Iraq, Israel, Jordan, Lebanon, Saudi Arabia,

15. (cont)

Syria, Turkey, and Yemen. Isohyetal maps give mean precipitation for January and July. Isotherm maps give absolute maximum and minimum and mean daily maximum and minimum temperatures for January and July. (DLB)

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16. Doron, E. and A. Cohen, Mountain Lee Waves in the Middle East: Theoretical Calculations Compared with Satellite Pictures. Meteorological Satellite Data-Final Report of Studies, Hebrew Univ, Dept. of Meteorology, Contract CWB-11055 (U.S. Weather Bureau), Jerusalem, 1967, 12 p. DAS M(051) J56re final.

...Four cases of mountain-lee waves in the Middle East are discussed. The wavelengths, as observed on satellite pictures, are compared with calculation of wavelengths based on several different assumptions. Results show that the theory most applicable in the region is the one assuming an exponential increase in the wind speed with height. (Pt. Auth. Abs.)

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17. Fisher, W.B., The Middle East, A Physical, Social, and Regional Geography, 1966 ed. (originally published in 1950) Methuen and Co. Ltd, London, 1966, 514 p. DLC DS49.F56.

...Contains an extensive section on climate. Tables and maps of mean temperatures, precipitation, and mean cloud amount (cloud amounts for Beirut and Damascus, only) are given. A descriptive climatology of the area is also included. (DLB)

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18. Great Britain Meteorological Office, Weather in the Mediterranean. Vol. II [Climatic tables] M.O. 391b, 1964, 372 p. DAS M82/262 G786 1964.

...This source consists entirely of climatic tables for countries in the Mediterranean Sea area including Gibraltar, Morocco, Algeria, Tunisia, Malta, Libya, Egypt (UAR), Israel, Lebanon, Syria, Cyprus, Turkey, Crete, Greece, Albania, Yugoslavia, Italy, Corsica, Sardinia, France and Spain, also included is a BIBLIOGRAPHY used in compiling the climatic tables. (VJC)

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19. Guss, Hans, Statistische Charakteristiken des Hohenwindes fur den Raum Nordatlantik-Europa-Naher Osten [Statistical Characteristics of Upper Air Winds for the North Atlantic-European-Near Eastern Area], Berichte des Deutschen Wetterdienstes, No. 105, Band 14, Offenbach a.M., 1967, 8 tables, 44 maps. DAS M(055) G373ba.

...The circulation conditions of the lower stratosphere in the North Atlantic-European-Near Eastern Region and upper wind conditions at 225 mb and 96 mb have been examined. Radiowind measurements mainly were taken as a base. To obtain a network of points of intersection of coordinates, these measurement results were completed from synoptic upper-air charts -- for the above-mentioned levels -- by using cyclostrophic wind and by interpolation to a universe of wind values free of gaps. On the basic of such homogeneous material some statistical characteristics of upper wind have been computed and represented on regional maps for the North Atlantic-European Region with windroses, isotachs, mean vector wind, and persistence as well as zonal and meridional standard deviation. In doing so, the representativeness of the basic material was checked. Considerations based on the comparisons of these results yielded some essential features of the regional distribution of these upper-wind parameters which appear interesting in relation to atmospheric circulation. (Pt. Auth. Abs.)

German

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20. Hills, E.S. (edited by), Arid Lands, A Geographical Appraisal Methuen and Co., Ltd., London, 1966, 461 p. DLC GB611.H5.

...Contains sections on the climatology, geomorphology, water supply, and soils of arid regions. Much of the descriptive material on desert regions is applicable to the Middle East area. Several maps of terrain classification include the Middle East and adjacent areas. (DLB)

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21. Howe, George M. et al., Classification of World Desert Areas. The Travelers Res. Center, Inc., U.S. Army Natick Labs., Contract DA 19-129-AMC-1008(N), Tech. Rpt. 69-38-ES, ESL ES-44, Natick, Mass., 104 p. AD 683603.

...Contains maps of aridity and thermal classification for 8 continental and subcontinental areas, among them Southwestern Asia. Aspects of climate and terrain that are of significance to Army operations are described. (Pt. Auth. Abs.)

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22. Jordan (Hashimite Kingdom). Central Water Authority, Pt. I 30-Year Average Rainfall in Jordan 1931-60, Pt. II. Rainfall in Jerusalem 1846-1964. Technical Paper No. 34, Amman, Dec 1964. 10 refs, 3 figs, enfolded map. DAS 77.21/569.4 J82th.

...The text describes the history of rainfall records in Jordan. Part I gives an explanation of the table, map, and the rain-gauge exposures and records. The table lists the average annual rainfall for the 30-year period for 189 Jordan, 18 Syrian, and 31 stations in Palestine (Israel). Part II has an explanation of the tables, figures, and records. Table 2 contains the annual hydrologic-year rainfall, year-by-year, from 1846/47 to 1963/64; it also lists the 30-year standard period rainfall and the highest and lowest 10-year average. Figure 1 is a graph of the annual rainfall 1861-1961, year-by-year, for Jerusalem. An enfolded polychrome map shows the annual average rainfall in Jordan based on 1931-1960. (VJC)

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23. Kaka, George; Sakka, Rajah; and Al-Basri, Abdul Wahed Mohammed, A Case of Jet Stream Activity over Eastern Mediterranean Sea and the Middle East. Iraq, Meteorological Dept., Meteorological Memoirs 1, 1962, Issued Baghdad, pp 149-158. 6 figs, 2 tables, 2 refs. DAS M(055) I65me.

...Discusses a case of jet-stream activity over the eastern Mediterranean Sea and the Middle East region during the last week of March, 1962. Vertical cross-sections of 2 air-routes between southern Europe and the Middle East have been discussed along with vertical time-section charts of 4 of the representative stations over the area. It is seen that the sub-tropical jet stream had two branches over the Middle East region which were separated by about 10° of latitude. During the week there was a succession of active low pressure waves across the sea. (Author)

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24. Karel, Pejml, Prispevek k otazce klimatickych zmen v Asyrii a Babylonii [The Problem of Climatic Changes in Assyria and Babylonia], Meteorologicke Zpravy, Prague, 13(3/4):1960, pp 96-100. 3 figs, 4 tables, 20 refs, Russian and German summaries p 96. DAS PAM M(0_) M589me.

Mesopotamia

...Atmospheric flow in Assyria and Babylonia is compared with contemporary atmospheric flow in Iraq. The wind roses for the ancient cities are deduced from their city plans and from cuneiform tablets. No marked differences could be distinguished between the ancient and new wind roses for the period 1100 to 90 B.C. (Translation of German Abstract) (ILD)

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25. Kolb, C.R. and W.K. Dornbusch, Jr., Analogs of Yuma Terrain in the Middle East Desert, U.S. Army Engineer Waterways Experiment Station, Tech. Report No. 3-630, Vicksburg, Miss., Jun 1966, 19 plates. AD 487434.

...Contains basic terrain and analog maps. Maps of soil types and soil consistency are included. In addition, other maps describing the physical environment of the Middle East are also presented. (DLB)

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26. Landsberg, H.E. (Chief Editor), World Survey of Climatology, Vol. 9 Climates of Southern and Western Asia, (Vol. 9, H. Arakawa, editor), Elsevier Publ. Co., Amsterdam, to be published at a future date.

To Be Issued

...This publication will contain an introduction to the synoptic climatology of the southern and western Asia areas. The text will be divided into three parts: the southeast Asia area; the Indian sub-continent-Himalayan area; and the Near East area.

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27. Lauscher, F., Agrarklimatologie der semi-ariden Gebiete des mittleren Ostens [Agroclimatology of the Semi-Arid Regions of the Middle East], Wetter und Leben, Vienna, 14(9/10)1962, pp 220-222. DAS M86 W542.

...This author summarizes the final report of the FAO, UNESCO and of the WMO on the program for investigation of agroclimatic conditions in the semi-arid regions of southwest Asia proposed during the seventh meeting of the FAO in 1953. In the countries of this region (Jordan, Lebanon, Syria, Iraq, etc.), there are about 40 stations with sufficiently long temperature observations and about 10 stations with phenological data. Potential evaporation was measured for 22 stations by Penman's method. Also, climatic homologues to reference areas such as Cyprus, Israel, Spain, etc. were established. The circulation regime over this region and the resulting temperature and precipitation characteristics are described; the precipitation amounts and temperatures required for agroclimatic purposes, the water balance regimes, etc. are discussed with the aid of data for particular areas. (ILD)

German

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28. Lebanon, Service de Climatologie, Bulletin Climatologique Mensuel [Monthly Climatological Bulletin] Ksara, Sep 1944 - Dec 1964, (formerly "Bulletin Mensuel" 1944-54) Tables. DAS M06.1/569 L441b.

...Contains daily mean, maximum, and minimum temperatures and total rainfall amount with monthly summaries for 4-6 stations (number of stations greatly increased in later years) in Lebanon and several stations in Syria for September 1928-August 1930. Presents monthly summaries of mean, mean extreme, and absolute extreme temperatures; total precipitation; days with miscellaneous phenomena (lightning, thunderstorms, lightning and thunderstorms, snow cover, gales or strong winds, sandstorms, fog); evaporation amount; relative humidity; % of clear and cloudy days; duration of sunshine; wind direction frequency; wind speed frequency; mean cloud amount at 0800, 1300, 1800 and mean of the 3 observations; mean low cloud amount at 0800, 1300, 1800 and mean of the 3 observations; and daily rainfall amount for approximately 5-16 stations in Leban and for several stations in Syria for all or part of the period (September 1930-August 1941, September 1944-December 1958). Maps for each month with mean isohyets and mean isotherms are presented for the more recent years. Graphs of individual elements are also included for several stations. (VJC)

French

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29. Levi, Michael, Local Winds Around the Mediterranean Sea, Israel Met. Ser., Series C (Misc. papers) No. 13, Bet Dagan 1965. 4 p, 1 map, Hebrew-English. DAS M(055) I85ma.

...Textual description of local winds over the lands surrounding the Mediterranean Sea. A map shows the direction, season, moisture or dryness, and accompanying weather of these local winds. (DLB)

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30. Levi, Michael, On the Moisture Sources of Clouds Connected with the Subtropical Jetstream in the Middle East. Meteorological Satellite-Data-Final Report of Studies, Hebrew Univ., Dept. of Meteorology, Contract CWB-11055 (U.S. Weather Bureau), Jerusalem, 1967, 6 p. Fig. DAS M(051) J56re final.

...This study investigates middle and high-level clouds which accompany the subtropical jetstream in the Middle East. The clouds are analyzed by means of satellite photographs of the Middle East area. (DLB)

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31. Levi, Michael, The Dry Winter of 1962-63: A Synoptic Analysis, Israel Exploration Journal, Vol. 13, No. 3, Jerusalem, 1963, pp 229-241. DLC DS111.A1187.

...A meteorological study of cyclone frequency and synoptic analysis in the Eastern Mediterranean as it affected the winter drought in the area. (DLB)

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32. Meigs, P., Geography of Coastal Deserts, UNESCO, Arid Zone Research, XXVII, Paris, 1966, 140 p. DLC GB612.M4.

...Contains general discussions on coastal deserts. More specifically, the climates of a number of deserts are discussed. Among these are the Mesopotamian littoral, the Negev, and the Sinai deserts. Descriptive climatologies are presented with a limited amount of data (mean daily temperatures, annual rainfall, etc.) (DLB)

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33. Neumann, J. et al., Studies in the Synoptic Uses of Meteorological Satellite Data, Jerusalem. Hebrew Univ., Dept. of Meteorology, Contract Cwb-10834, Report No. 1, Mar 1964-Feb 1965. 84 p. Figs (2 fold.) DAS M(055) J56re.

...The general area of the Mediterranean and the Middle East includes extensive sea and desert areas where the density of reporting stations is extremely small. The synoptic maps prepared on the basis of conventional meteorological data are reexamined in the light of the additional information presented by both the Tiros photographs and radiation data (8-12 μ) where, of all the orbits studied, the results of 14 such orbits are described. (Pt. Auth. Abs.)

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34. Ritter, G.W., Climate and Visibility in the Middle East, Naval Missile Center, AIRTASK A30303303, TM-67-29, Point Mugu, Calif., Jul 1967, 18 p. 5 refs. AD 816828L.

...This report provides a brief description of those climatic conditions which are believed to be significant to visibility for one region of the world, the Middle East. The report contains general descriptive material and a representative amount of tabulated data (temp, RH, precip, etc.) for the Middle East. The data are seasonal (Jan, Apr, Jul, Oct). (Pt. Auth. Abs.)

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35. Rosenan, N., Climatic Fluctuations in the Middle East During the Period of Instrumental Record. UNESCO, Arid Zone Research, Vol. 20, pub. 1963, pp 67-73. 4 figs, 3 tables, 15 refs. French summary p 73. DAS M83 R763ch.

Also in UNESCO-WMO Symposium on Changes of Climate with Special Reference to the Arid Zones, Rome, Oct 1961. [Provisional Programme and Selected Preprints of Contributions]. 8 p. Mimeo. 4 figs, 3 tables. At head of p 1: UNESCO/NS/AZ/575, Rome Symposium, Paper No. 5. DAS M77.38 U586cLi.

...Modern meteorological records were started in the Middle East in 1860. The analysis was carried out by using as parameters the annual averages of temperatures and the annual totals of precip. for 10-yr periods. The fluctuations of 10-yr averages of annual temperature for six stations in the Middle East, Rome, and Athens were tabulated. A fair agreement was found between climatic tendencies in southern Europe and the Middle East, while marked differences in climatic variations and their phase were recorded between maritime and continental stations. (SN)

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36. Rycroft, W. Stanley and Clemmer, Myrtle M., A Factual Study of the Middle East, Commission on Ecumenical Mission and Relations, United Presbyterian Church, Office for Research, New York, 1962, 149 p. DLC DS44.U55.

...The introduction contains a description of geography and climate. A rainfall map of the Middle East - North Africa area is included. (DLB)

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37. Shaw, Berenice, Depressions and Associated Desert Locust Swarm Movements in the Middle East: An Outline with Particular Reference to the Spring of 1961 and 1962. World Meteorological Organization, Technical Note No. 69,1965, pp 194-198. Figs, table. DAS M(06) W927p.

...Since March 1961 the Desert Locust Information Service has been making use of current meteorological observations to follow swarm movements. Synoptic observations have been plotted and an elementary analysis of the 850-mb flow has been made. During the spring periods of 1961 and 1962, at least 13 depressions passing through the Middle East were associated with major swarm movements. Brief data on the histories of these storms are tabulated and some conclusions drawn. (Pt RB)

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38. Thornthwaite, (C.W.), Average Climatic Water Balance Data of the Continents, Laboratory of Climatology, Publications in Climatology, Vol. XVI, No. 1, Part II, Asia (Excluding USSR), Centerton, N.J., 1963, 262 p. DAS M8 T513p.

...Climatic data are given for the Middle East countries (Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Oman, Saudi Arabia, Syria, and Yemen). The data include: potential evapotranspiration, precipitation, soil moisture storage, - actual evapotranspiration, water deficit, and water surplus (monthly and annual). (DLB)

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39. UNESCO-FAO, Bioclimatic Map of the Mediterrean Zone - Explanatory Notes, UNESCO, Paris, Arid Zone Research, No. 21, 1963, 58 p, 6 maps. DLC GB841.S9.

...This study presents a system of climatic classification based on subjective criteria and emphasizes the degree of aridity as a major factor in the determination of different climatic types. Middle East area is included. (Pt. Auth. Abs.)

40. USAF, AWS, Hq, 5WWg, Climatic Data Summaries for the Middle East, Africa and Southern Asia, 5th WWg Manual, 105-1, Vol. III, Langley AFB, Va., 15 Sep 1967, 220 p. Mostly tables. IPB Files.

...This manual contains Climatic Data Summaries (CDS) for selected stations located in the Middle East, Africa, and Southern Asia. A station locator chart is included. Data are in tabular form summarized over a period of record, and include temperatures (extreme maximum, mean daily maximum, mean daily minimum, extreme minimum), mean number of days with temperatures $\geq 90°F$, $\geq 80°F$, $\leq 32°F$ and $\leq 0°F$, mean monthly and maximum 24-hr amount of precipitation; snowfall amount, hail, thunderstorms, surface winds, take-off data (dewpoint, relative humidity, vapor pressure, and pressure altitude), and various categories of ceiling/visibility criteria. (JLS)

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41. USAF, AWS, Hqs 19th Air Force, Climatological Summary Weather and Climate of the Near East, 2WGp, Seymour Johnson AFB, N.C., J-5 Revised, Jun 1961, 141 p. IPB Files.

...This study includes general climatic and geographic information on Iran, Iraq, Israel, Jordan, Lebanon, Syria, Saudi Arabia, Turkey, and Cyprus. In addition, climatic data for 33 stations in the Near East area are included. The data include: temperature; precipitation; flying weather (%); observations with ceiling and or visibility less than 1000 ft/3 miles; mean cloudiness 1000 LST; and mean cloudiness 1600 LST; and take-off data (mean vapor pressure, dewpoint, and pressure altitude). (DLB)

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42. USAF, ETAC, Worldwide Airfield Climatic Data, Vol. II, Pt. 1 and 2, "Middle East" also pub. by USN Wea. Ser. titled "US Naval Service World-wide Airfield Summaries" Asheville, Oct 1967, 335 and 698 pages, tables. AD 662425 and AD 662427.

...Climatological data applicable to specified airfields and climatic areas are summarized. The data consist of statistical parameters based on actual weather observations made at the airfield. The climatic area data are average values based on a sample of climatological data available from weather stations within the area. Contains data for Iraq, Jordan, Lebanon, Syria and other Middle East countries. (Pt. Auth. Abs.)

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43. U.S. Army Natick Laboratories, World Maps of High Dry-Bulb and Wet-Bulb Temperatures, Natick Labs., ESD, Tech. Rpt. ES-11, Natick, Mass., Aug 1964, 18 p. Maps. AD 447402 and DAS M86 U5854.

...Contains maps of high temperatures: warmest month, mean monthly maximum; percentage frequency of maximum temperatures $\geq 100°F$, $105°F$, $110°F$, $115°F$, and $120°F$; frequency of hourly temperatures $\geq 100°F$, $105°F$, $110°F$, and $115°F$; mean duration of hot spells; and mean daily maximum wet bulb $\geq 70°F$. The dry-bulb temperature maps are pertinent to the Middle East area. (DLB)

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44. U.S. Naval Oceanographic Office, Sailing Directions for the Mediterranean, Vol. IV, publication no. 55. Washington, D.C. 1963. DAS 82/262 U58s v.4.

...This publication gives regulations, climatology, oceanography, and general navigation for all countries in the Mediterranean area, including Libya, Israel, Lebanon, Syria, and others. General information is given on land and coastal features, with brief descriptions of winds, weather, and climatology for several port cities. (VJC)

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45. U.S. Navy, Fleet Intelligence Center, FICEUR Enroute Weather Guide for Mediterranean Area. U.S. Naval Forces, Europe, U.S. NAS, Jacksonville, Fla., Dec 1969, 36 p. IPB Files.

...Climatological data are summarized for 5° squares in the Mediterranean area. The data consist of: mean monthly air temperature; mean number of days per month with measurable precip; mean number of days per month with measurable snowfall; and prevailing visibility in statute miles. The 5° squares extend into the Middle East. Additional maps present seasonal scalar mean wind speed - direction and seasonal percentage of cloud cover at and below 5,000 ft (area, 50°N to 30°N, 0° to 50°E). (DLB)

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46. Wallen, C.C., Agroclimatology in the Near East, World Meteorology Organization, WMO Bull. 11(3) Jul 1962, pp 116-123. Fig, table. DAS M(05) W927w.

See also: Arid Zone Research No. 17, Sep 1962, pp 1-7. Table.
DLC GB841.S9.

...A joint report was published by FAO/UNESCO/WMO on the agroclimatological conditions of the Near East, including Lebanon, Jordan, Syria, Iraq and Iran. For studies of temperature conditions, only 8-10 yrs of data were available. Only 70 stations have records longer than 15-20 yrs. The report shows that western and southern parts of the region receive winter rainfall due to winter depressions from the west. In the eastern and northern areas, the rainfall season extends into spring and early summer. In Jordan, rainfall ends in spring, while in Syria and Iraq it lasts until the beginning of May. The increase in the rainfall season while proceeding from south to north is due to the passage of the jet stream over the region in spring. (Pt. AHK)

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47. Wallen, C.C. and Perrin de Brichambaut, Ch., G. Perrin, Technical Report on a Study of Agroclimatology in Semi-arid and Arid Zones of the Near East, Food and Agriculture Organization, Jul 1962. 185 p + appendices. Figs, tables, bibliogs. DAS M86:63 W197te.

...The technical report includes a general presentation of the agriculture and climate of the region covered (Jordan, Lebanon, Syria, Iraq and Iran), a study of the various climatic factors and their relation to cereal production, a classification of agroclimatic regions and, finally, a comparative study of several reference stations. Annexes on the vegetation, soils and some important crops are included. A general study of the circulation over the region and a careful analysis of the temp. conditions were first carried out, later a special investigation was made on the duration and the periods of development of winter cereal crops in various parts of the region. On this basis, the relation of temp. to development of winter cereal crops was studied. (EK)

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48. World Meteorological Organization, Meteorology and the Desert Locust. Proceedings of the WMO/FAO Seminar on Meteorology and the Desert Locust. Tehran, 25 Nov-11 Dec 1963. WMO Tech. Note, No. 69, 1965, 310 p. DAS M(06) W927p.

...A current review of the synoptic climatology of the desert locust area of Africa through the Middle East to the Thar Desert. Although the emphasis is on the weather systems important to locusts, the collection into one volume of the ideas and thoughts of so many meteorologists interested in this area results in a particularly useful report. (Author)

IRAQ

49. Abdulahad, Ghanim, Thunderstorms and Hailstorms at Baghdad, Iraq, Meteorological Dept., Meteorological Memoirs, Vol. 1, pp 33-38, 1962. DAS M(055) I65me v.1.

...Meteorological data, 1950-1960, have been studied and certain useful means and frequencies have been derived. Monthly and annual data include: frequency of thunderstorms at Baghdad, frequency of durations of wind direction; wind speed; and hailstorm. Synoptic features are also discussed. (VJC)

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50. Al-Hassani, Seham, "Empirical Rainfall Probabilities in Iraq," Iraq. Met. Dept., Studies of Rainfall and Temperature Conditions in Iraq. Meteorological Memoirs, Vol. II, Baghdad, 1964, pp 3-7. Foreign Area Section.

...Quintiles (five-section frequency groups) are tabulated for determining probabilities of various monthly and annual rainfall amounts (mm). Table 1 gives quintiles for Mosul, 1931-60, with amounts arranged in increasing order. Other tables present limits for the quintiles of monthly and annual rainfall amounts (the amount expected to be exceeded in four years out of five) for ten stations in Iraq. These are: Mosul, Rutbah, and Diwaniya, 1931-60; Khanaqin, Hai, Nasirya, Kirkuk, Baghdad, and Basrah, 1941-60; Habbaniya, 1936-60. (Author)

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51. Al-Khasani, Ph. G., Osobennosti radiatsionnogo rezhima Iraka [Characteristics of the Radiation Regime in Iraq.] Geograficheskoe Obshchestvo SSSR, Izvestiia, 97(5), Sep/Oct 1965. pp 463-469. Figs, tables, refs. DLC G23.G16.

Russian

...The contents of this paper comprise the following: the formulas for computing radiation balance, the total radiation (M.J. Budyko), and the effective radiation (M.E. Berliand); a map showing the landscape climatic zones of Iraq; tables giving the annual variation of global radiation, the totals of reflected radiation, the totals of absorbed radiation, the annual variation of effective radiation, the radiation balance, and the radiation balance of different climatic landscape zones and isolines of the annual total radiation, and of the annual radiation balance of Iraq. (ILD)

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52. Al-Rifai, M.S., Statistical Forecasting of Minimum Temperatures in the Baghdad Area. Rep. of Iraq, Met. Dept., "Met. Memoirs," Vol. II, Baghdad 1964, pp 46-55. Tables, fig. DAS M(055) I65me.

...The daily normal minimum temperatures for Baghdad are listed in Table 1 for the months of November through March. (VJC)

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53. Ashbel, Dov, Frequencies of Temperature Thresholds (Hours per Month) and Maximum-Minimum Graphs. Hebrew University, Jerusalem, 1967. Graphs, tables, Hebrew-English. DAS M24.36 A8i9fr.

...A brief climatological description of Iraq is given. Graphs show the daily mean and the absolute maximum and minimum temperature for five Iraqian cities. Tables list the mean monthly maximum, minimum, average, range, absolute maximum, and minimum temperature at Baghdad, Basra, Habbania, Mosul, and Rutba. Annual and monthly mean frequencies of temperature thresholds (in hours) are shown by 5 degree intervals from 0 to 45°C for Baghdad, Basra, and Habbania. (VJC)

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54. Awad, Ali, Dust Phenomena at Baghdad Airport. Iraq, Meteorological Dept., Meteological Memoirs, Vol. 1, 1962, pp 1-6. DAS M(055) I65me v.1.

...The hourly weather data of Baghdad Airport Weather station for Jan 1950 through Jun 1960 were examined for occurrences of dust storms, dust-raising winds, and dust haze. The results are presented in this paper. Among the data are: monthly and annual number of days with dust storms, number of occasions with dust phenomena, number of occasions of dust phenomena with visibility 100 meters, and maximum duration of poor visibility encountered with dust phenomena. It is seen that towards the end of the decade examined there was a marked increase in the incidence of dust phenomena. Possible explanations are given. (VJC)

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55. Aziz, Ibrahim S., "A Study of the Beginning and End of the Rainy Season in Iraq," Meteorological Dept. Studies of Rainfall and Temperature Conditions in Iraq. Meteorological Memoirs, Vol. II, Baghdad, 1964, pp 14-30. Foreign Area Section.

...Table 1 shows number of 10-day periods in which the total rainfall exceeded 2.0, 5.0, 10.0 and 20.0 mm for last time in spring and first time in autumn for Mosul, 1937-63. Geographical maps of Iraq, with isolines, show the "mean date" for first and last seasonal rainfall exceeding 2.0-, 5.0-, and 10.0-mm/10 days. For nine stations, graphs show empirical probabilities of various rainfall amounts after any date in spring and before any date in autumn/winter. (RES)

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56. Babakan, M.E., The Diurnal Variation of Rainfall in Central Iraq. Rep. of Iraq, Met. Dept., "Met. Memoirs," Vol. II, Baghdad, 1964, pp 31-33. Table, 2 graphs. DAS M(055) I65me.

...A number of pluviograms derived from rainfall measurements taken at Baghdad West Airport (POR 1949-1960) were examined for evidence of a systematic diurnal rainfall variation. Results reveal that most rainfall in central Iraq is due to frontal or cyclonic convergence. (DLB)

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57. Buringh, P., Soils and Soil Conditions in Iraq. Rep. of Iraq, Ministry of Agriculture, Baghdad, 1960, 322 p. 167 figs, maps, 38 tables. DNAL 56.25 Ir1.

...Contains extensive information on the soils of Iraq. Chap 2 has sections on climate, soil climate, and hydrology. A rainfall map, based on data 1938-1950, is given. Another rainfall map illustrates rainfall variation. Temperatures (monthly mean, mean maximum, mean minimum, and extremes), soil temperatures, monthly and annual evaporation, and wind diagrams are also given. (DLB)

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58. Dieleman, P.F. (ed.), Reclamation of Salt Affected Soils in Iraq: Soil Hydrological and Agricultural Studies. International Institute for Land Reclamation and Improvement, Wageningen, Netherlands, Publications, No. 11, 1963. Figs, tables, refs, eqs. English, French, German and Spanish summaries pp 149-170. DNAL 54.9 In8.

Contents: Van der Sluis, P.M. and Hulsbos, W.C., General Introduction, pp 14-26.

Hulsbos, W.C., Data on the Soils and Salts of the Khailah Experimental Area, pp 27-35.

Hulsbos, W.C., Leaching of Saline Soils, pp 36-47.

Contents: Boumans, J.H., Alkalinity Aspects of Leaching of Salt Affected Soils, pp 48-56.

Hulsboe, W.C., Crop Yields and Rotations during Reclamation, pp 57-68.

Boumans, J.H., Consumptive Use, pp 69-82.

Boumans, J.H., Some Principles Governing the Drainage and Irrigation of Saline Soils, pp 83-96.

Boumans, J.H., Some Applications and Calculations, pp 97-116.

Lindbergh, L.J. and Van der Sluis, P.M., Some Economic Aspects of Reclamation Projects, pp 117-122.

...The general introduction by VAN DER SLUIS and HULSBOS contains a brief description of the climate of Iraq and contains graphs of the atmospheric temperature regime, the average amount of monthly rainfall, and monthly and averages of relative humidity at the Baghdad Airport. (HLD)

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59. Guest, E., Flora of Iraq - Vol. I Introduction to the Flora. Iraq, Ministry of Agriculture, 1966, 213 p. Maps. DLC QK379.I56.

...An account of the geology, soils, climate, and ecology of Iraq. (Pt. Auth. Abs.)

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60. Kassoon, K., An Analysis of a Violent Squall at Baghdad Airport in "Met. Memoirs" Vol. 1, Baghdad, 1962. pp 112-121. Ref, 6 figs, table. DAB M(055) I65me v.1.

...This paper discusses the main synoptic features associated with a squall on 29 April 1961 at Baghdad. Maps and graphs illustrate the role of low-pressure waves moving toward the northeast or north across Saudi Arabia and the frontal activity over central Iraq and adjoining areas. Some features of the associated jet stream also are discussed. Table 1 lists the monthly and total frequency of squalls with a speed exceeding 25 knots at Baghdad. (Pt. Auth. Abst.)

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61. Iraq, Statistical Abstract 1965, Ministry of Planning, Central Bureau of Statistics, Section of Research and Publicity, Baghdad, 1966, 445 p. Tables. Census IR2A84, 1965 and DNAL (DC) 269.8 I-1.

...In addition to a general discussion of the weather for 1965, summarized mean monthly values of pressure (mb), temperature (°C), relative humidity (%); mean daily maximum and minimum temperatures (°C), monthly rainfall; mean number of days with rain, snow, hail, thunder, fog, dust storms, and sunshine hours; highest maximum and lowest minimum temperatures (with dates), and maximum rainfall, with dates, POR 15-45 yrs. (ALS)

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62. Iraq. Meteorological Department. Climatological Atlas for Iraq. Publication No. 13, Baghdad (1961). DAS M82.2/567 I65p, no. 13.

...This atlas is a revision of the 1945 issue, Publication No. 8. At least 12 years of more recent data (up to 1956) have been added. Data are based on reports from 19 first-order stations and 59 precipitation stations over a varying period from 1923-1956; this data will be issued in a special publication at a later date. A station list shows coordinates, elevation, and period of record. It contains the following polychromatic map, mostly on a scale of 1:5,000,000: Precipitation - mean monthly and annual isohyets and number of days with rain; mean annual number of days with hail and snowfall. Temperature - mean annual and bi-monthly isotherms; monthly maximum and minimum; mean annual number of days with minimum $\leq$ 0°C, $\leq$ 5°C, maximum $\geq$ 25°C, 30°C, 40°C and 45°C; mean monthly and extreme maximum and minimum by bar graphs. Humidity (mixing ration in gm/kg) - mean annual and bi-monthly isopleths; mean monthly relative humidity at 03 and 12 Z by pie graphs. Pressure - mean bi-monthly isobars; mean monthly sea level pressure by bar graphs. Clouds - mean monthly low and total amount at 03, 06, 12Z by pie graphs in oktas and mean annual isonephs. Mean monthly duration of daylight and hours of sunshine by bar graphs (for Baghdad and Mosul). Dust (visibility less than 1 km), Fog and thunderstorms - mean monthly and annual number of days by isopleths. Wind roses with average monthly frequency from specified directions for selected station at 03, 06 and 12Z and mean monthly number of occurrences of concurrent wind speed and direction within specified ranges for Baghdad at 12Z. (VJC)

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63. Iraq. Meteorological Department. Climatological Means for Iraq. Publication No. 11, Baghdad 1960, 56 p. DAS M82.2/567 I65, no. 11.

...For ten principal stations (Mosul, Kirkuk, Khanaqin, Baghdad, Habbaniya, Hai, Diwaniya, Nasiriya, Basrah), tables of monthly values of climatological data as follows: Rel. Humidity, Vapor Pressure, Low Cloud Amount, Total Cloud Amount, Wind Direction Frequencies -- mean of each at 8 hours of the day and for day as a whole; Temperature -- means as above, and, in addition, the mean and absolute extremes; Rainfall -- mean, and maximum 24-hr amount, no. of days with > 1 or > 10 mm; Pressure -- mean at each of 8 hrs, mean for day, absolute extremes; also, mean number of days with snow, hail, thunder, fog, dustetorms, and clear and cloudy sky. Finally, for about 60 stations, in a special table, mean rainfall amounts. Basic period of record is 1935-56. (Pt. Auth. Abs.)

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64. Iraq. Meteorological Department. Climatological Normal for Iraq. Publication No. 14, Baghdad 1965. DAS M82.2/567 I65.

.. Climatic data for the following stations: Mosul, Kirkuk, Khanaqin, Rutbah, Habbaniya, Baghdad, Hai, Diwaniya, Nasiriya, and Basra. POR is 1931-60 but varies within this period for specific stations. Monthly and annual normals are given by 3-hourly periods. Various data are given in the following tables: (a) average values of temperature, pressure, relative humidity, vapor, low cloud and total cloud amount at each hour for each month and for the year, together with means of these values; (b) average daily max and min temperature plus extremes of max and min; (c) the average relative frequencies of winds from specified direction for each hour, for each month and the year, expressed as percentages; (d) averages monthly rainfall in millimeters, max rainfall in 24 hours with date of occurrence, mean number of days with at least 1 mm and at least 10 mm; (e) section headed "Mean Number of Days" giving the average number of days when the specified phenomena occurred. A day of rain is one on which total rainfall is $\geq$ 0.2 mm. Days of fog or dust are those on which the range of vision is < 1000 meters at any time of day. Clear days are those on which the average cloud amount at all observations is 0-1/8, and cloudy days are those with average cloud amount 7/8 or more. (Author)

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65. Iraq (Rep.) Met. Dept. Monthly Climatological Data, (Title varies; Monthly Weather Report for Iraq), Jun 1955-Apr 1966, Vol. 29, No. 3 & 4, 1966, Baghdad. Tables. DAS M06.1/567 I65mo.

...The number of stations vary from 8-13 over the period. Daily data of temperature - maximum, minimum, mean; pressure; relative humidity; precipitation; evaporation; minimum grass and soil temperature. Monthly mean data are in tables of dry and wet bulb temps, dewpoint, vapor pressure, relative humidity, pressure (MSL), and total and low cloud amount. The newer publications include daily radiosonde data (1200 GMT) at Basrah and Baghdad airports at standard levels. The number of days occurrence (by month) for 12 phenomena are tabulated. (VJC)

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66. Iraq. Meteorological Department. Rainfall in Iraq. Its Publication No. 12, Baghdad, 1960. 57 p. Maps, tables. DAS M82.2/567 I65p, No. 12.

...Isohyetal maps show the following: mean annual amount of precipitation in Iraq and adjoining countries (Turkey, Syria, Saudi Arabia, Cyprus, Iran); for Iraq only, the mean annual amount of precipitation, and mean monthly amount of precipitation (mm); tables present the monthly rainfall (mm) by year for 70 stations in Iraq. POR varies for each station, with 20-year periods about normal. Earliest data was recorded in 1923; latest, in 1959. (VJC)

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67. Iraq Petroleum Company, Ltd. Medical Dept. Daily State of Shade Temperature and Measurement of Rainfall, 1958-59, (Baghdad) 1960. 60 p. DAS M09.2/567 I66ds.

...Data are presented for five stations in Iraq. Three of these stations, designated T-2, T-3, and T-4, are field locations of the Petroleum Company and no specified locations are given. The other stations are Homs and Banias. The following day-by-day data are given: temperature (°F), maximum and minimum; rainfall (in.); condition of weather (clear, cloudy, fog, dust; calm or windy). The dates recorded are June, September, and November of 1958, and January-December 1959. (RES)

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68. Ito, Hiroshi, Micro-climatic Observation in the Extremely Hot and Dry Climate in Iraq. Journal of Agricultural Meteorology, Tokyo, 20(3) Jan 1965, pp 101-107. Figs, tables, refs. In Japanese; English summary p 107. DAS M86:360 S678j.

Japanese

...Natural conditions in Iraq are suitable for rice growing, except for the extremely high temperature and low humidity during the rice-growing season. Extremely high temperature and low humidity may, however, be modified and be suitable enough for rice production by concentrating rice fields in large, well-irrigated areas protected by windbreaks. (Author)

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69. Jalil, Salman Abdul, "The Variability of Annual and Monthly Rainfall in Iraq," Iraq. Meteorological Dept. Studies of Rainfall and Temperature Conditions in Iraq. Meteorological Memoirs, Vol. II, Baghdad, 1964, pp 8-13. Foreign Area Section.

...Statistical study of rainfall variability in Iraq. Monthly and annual average rainfall amounts and relative variabilities are given in tables and graphs for 10 stations; 25-year period for most stations, up to 1963. (Author)

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70. Jewitt, T.N., A Comparison of Sub-soil Water Conditions and Salinity in the Sudan and Iraq. United Nations Scientific, Educational, and Cultural Organization, Arid Zone Research Series, No. 14, 1961, pp 57-60. 7 tables, 3 refs. French summary p 60. DLC GB841.89.

...Presents a brief comparison of subsoil water conditions and salinity in the Sudan Gezira and the lower Diyala area of Iraq. The plains of Iraq have been irrigated in part and at times since the third millenium B.C., whereas irrigation in the Sudan Gezira started in 1912. The soils of the Gezira contained large quantities of salt before irrigation and this salt, only slightly changed in distribution and amount, is still present. The basic reason why there has been no deterioration in the soil is because the water table is deep and is not rising. In Iraq, the water table is sharply influenced by irrigation and there are many instances of a high-water table having caused salinization of the upper soil. In both Gezira and Iraq, the lower soil from a depth of 1 to 2 m is generally quite dangerously saline. If the Gezira soil were more permeable, the menace of a mounting water table would arise and, since the subsoil is saline, the consequence to agriculture would be disastrous. Fortunately, there is sufficient downward movement of water to prevent the accumulation of salt and to keep the salts of the subsoil at a safe distance from the surface. The lower Diyala of Iraq has fair drainage but there are considerable areas of highly saline soil where the soil was more permeable than the Gezira soils. (EZS)

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71. Kheder, Jamil, A Note on Some Climatic Features of Iraq. Iraq Meteorological Dept., Meteorological Memoirs, Vol. 1, 1962, pp 53-86. DAS M(055) I65me, v.1.

...This detailed study of the climate of Iraq includes: physical features, climatic regions, climatic elements, upper-air climatology, jet stream, and principal aspects of the synoptic climatology of Iraq. Tabular data, month-by-month and by year, include: mean rainfall; frequency of thunderstorms, hailstorms, duststorms, and fog; mean pressure and temperatures, including highest and lowest pressure and temperature on record; duration of daylight; surface air density with lowest possible; and pressure altitude. Upper-air tables include: mean heights, temperatures and dewpoints for Habbaniya and Baghdad to 100 or 150 mbs; height of freezing level over Baghdad; height of the top of inversion layer over Baghdad; average height and temperature of tropopause; also, gives distribution of air density over Baghdad-Habbaniyah area. (Pt. Auth. Abs.)

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72. Knetsch, G. and P. Gounot, Arid Zone Research in Iraq. UNESCO, Paris, Arid Zone Newsletter 22, 1963, pp 9-18. DLC SB110A75.

...A short geographical description of the deserts and rivers in Iraq. Some precipitation data is included. (VJC)

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73. Krarup, H.H., An Attempt to Predict Seasonal Temperature Conditions in Iraq. Rep. of Iraq Met. Dept., "Met. Memoirs," Vol. II, Baghdad, 1964, pp 34-37. 3 tables. Foreign Section, EDS, ESSA.

...Although primarily a forecast study, this paper presents some climatological records for Mosul from 1926-1963. An analysis of the seasonal means of daily maximum temperatures was made with 3 classes determined: cold (1°C below average), normal, and warm (at least 1°C above average). The absolute and relative frequencies (%) of Mosul maximum temperatures are shown in Table 1. Table 2 lists the total number of seasons of different types, while Table 3 shows the types of individual seasons year-by-year for the period. (VJC)

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74. Marhoun, H. and S. Mazumdar, Synoptic Study of a Hailstorm at Al Qurna in Southern Iraq. In "Met. Memoirs," Vol. 1, Baghdad, 1962, pp 39-52. 11 refs, 4 tables, 4 figs. DAS M(055) I65me.

...This paper reviews hazards to aviation caused by hailstorms and discusses in detail an instance of hailstorm aircraft damage in South Iraq. The synoptic factors of this instance are discussed. Table 1 shows the frequency by month and total of hailstorms for 5 southern Iraq cities. Further, the authors discuss size, duration, and frequency of hail. (VJC)

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75. Marhoun, Hisham and Khalaf, Hameed, Synoptic Study of a Spell of Fog at Baghdad Airport. Iraq, Meteorological Dept., Meteorological Memoirs, Vol. 1, 1962, pp 12-23, Issued Baghdad. 7 figs, table, 2 refs. DAS M(055) I65me.

...A spell of fog which occurred on four consecutive days in the last week of Nov 1960 at the Baghdad Airport has been analyzed from the synoptic point of view. The fog appears to have formed as a result of both nocturnal radiation and advection in the wake of a depression which caused a short rainy spell and was, therefore, typical of the season. The synoptic features, as brought out by the analysis, are discussed in this paper. (Author)

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76. Mazumdar, S., On Some Aspects of the Hydrology of the Tigris River at Baghdad. In "Met. Memoirs," Vol. 1, Baghdad, 1962, pp 87-109. 3 refs, 14 figs, 8 tables. DAS M(055) I64me v.1.

...Although primarily a hydrologic study, this paper discusses and illustrates the climatological features of the Tigris and Euphrates river basins. The author discusses the precipitation characteristics and provides isohyetal maps of the mean precipitation, annual and the months of October through May. Further discussion is given of the mean and extremes of the surface water temperature at Baghdad and its relation to air temperature is illustrated with graphs and tables. (VJC)

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77. Nikitin, N.A., Samum v Irake [A Sand Storm in Iraq], "Priroda," Moscow, No. 5, May 1961, pp 64-65. DAS P Col.

Russian

...Brief description of a phenomena observed in Baghdad on April 4, 1960. Appearance on the horizon of a small cloud is described, which in the course of 10 minutes was transformed into a gray wall, rapidly filling the whole sky. The phenomenon lasted about 3½ hrs, but the skies were obscured by dust for 3 days. (BJG)

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78. Saif, Salim Thamer, Squalls at Basrah (Margil) Airport. Iraq Meteorological Dept., Meteorological Memoirs, Vol. 1, 1962, pp 7-11. DAS M(055) I65me v.1.

...A preliminary study has been made of the interesting features of squalls at Basrah (Margil) and the results are given in this paper. Monthly and annual data include: frequency of squalls, summarized both for individual year and for 5-year period; frequency of duration of squally weather; frequency of wind direction during squalls; frequency of maximum wind speed; frequency of other weather phenomena during squall (hail duststorm, thunderstorm, rain). (Pt. Auth. Abs.)

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79. Thesiger, W., The Marsh Arabs. E.P. Dutton and Co., Inc., New York, 1964, 242 p. 109 photos, 3 maps, index. DLC 70.7.T45 1964a.

...A popular account is given of the author's life and adventures among the Arabs inhabiting the marshes at the confluence of the Tigris and Euphrates rivers. This book contains a chapter on the flood of 1954 and the drought of 1955. (VJC)

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80. Voûte, C. and Wedman, E.J., The Quaternary Climate as Morphological Agent in Iraq. (In: UNESCO-WMO Symposium on Changes of Climate with Special Reference to the Arid Zones, Rome, Oct 1961, (Provisional Programme and Selected Preprints of Contributions), 9 p Mimeo. At head of p 1: UNESCO/NS/AZ/586, Rome Symposium, Paper No. 16). DAS M77.38 U586cLi.

...The effect of climatic variations on the geological and morphological evolution of desert areas, mountain regions, and major river systems of Iraq were studied for several years. Three main morphological units were described: the Tauros-Zagros mountain chain, the Mesopotamian Syncline, and the Western Desert. Landslides and solifluction in the mountains, deep, gravel-filled valleys in Mesopotamia, and elevated shorelines on the slopes of desert depressions strongly suggest the occurrence of pluvial periods in Iraq during the Quaternary. The results of human inference with nature are not negligible. Such achievements as creation of huge lakes and other major works stimulates tendencies already existent in nature and increases the intensity of natural processes. (SN)

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81. Voûte, C. Climate and Landscape in the Zagros Mountains (Iraq). International Geological Congress, 21st, Copenhagen, Report 4, 1960, pp 81-87. DLC QE1.I6 1960em.

...The morphology of the Subimaniyah Valley in the Zagros mountains is described. Climate is discussed as it affects the landscape (by erosion). Descriptions of climatic changes since prehistoric times are given. (DLB)

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82. Wartena, L. and Borghorst, A.J.W., The Energy Balance of An Evaporation Pan and the Measurement of the Reflectivity of Its Bottom. Royal Meteorological Society, Quarterly Journal, London, 87(372), Apr 1961, pp 245-249. 2 figs, table, 8 refs. DAS M(055) R888g.

...A U.S. Weather Bureau Class A evaporation pan was used for micrometeorological measurements in Iraq. Because it seemed doubtful if the method of the U.S. Weather Bureau could be used for working up the data in the desert climate of Iraq, the energy balance of the pan was studied, and details are published elsewhere. The considered items are summed up in this contribution and the results are given in a table. The problem of the albedo for sunlight of the shallow water in the pan was studied in the laboratory. Measurements were taken with a filtered light-beam and a silicon photo-cell. In a zinc pan filled with 0.175 m water, 8% of the direct and diffuse sunlight with wavelengths < 1 which has penetrated through the water surface is reflected. (Author)

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83. Weickmann, L., Meteorological and Hydrological Relationships in the Drainage Area of the Tigris River North of Baghdad. Meteor. Rundschau, 16th year, Vol. 2, Mar-Apr 1963, pp 33-38. 3 figs, 7 tables. DAS M(05) M587.

...Based on a number of individual charts, showing the average annual, seasonal, or monthly amount of precipitation in Iran, Turkey, and Iraq, a composite chart

83. (cont)

of average annual precipitation for the area was prepared (Fig. 2) A discussion is also given on cyclones, tracks (Fig. 1) and frequency. Average yield of precipitation per cyclone is also tabulated. (Pt. Auth. Abs.)

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84. Zonn, I.S. and N.S. Limachov, Water-physical Properties of the Euphrates (sic) Valley Soils. "Soviet Soil Science," Washington, D.C., No. 8, Aug 1967, pp 1080-1092. Figs, tables, refs. (Transl. of original Russian in corresponding issue of Pochvovedenie, Moscow). DAS P Col.

...The water properties of the alluvial-meadow irrigated soils formed under high water-table conditions in the Euphrates River Valley were studied at 3 locations. In this paper the soil profiles at each site are described and the mechanical analysis and the water properties are tabulated for the investigated sites. Water-physical properties of irrigated alluvial-meadow and periodically inundated soils and of solonchaks on the 7th day after irrigation are shown in a series of diagrams and infiltration curves. Conclusions drawn from an analysis of the presented data include the following. The intensified capillary rise in the summer brings salts, into the top horizons. The heavy soil texture is responsible for the low infiltration (0.9 to 0.1 m/day) rates and poor accretion at field capacity. Leaching must be done to prevent resalination. Drains must be 3.5 m deep with 100 m spacing in a heavy clay soils and 200 m in lighter soils. (DBK)

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85. Lych, Stanislaw and Dubaniewicz, Henryk, Opracowanie wytycznych klimatycznych do planu zagospodarowania przestrzennego na przykladzie miasta Bagdadu; przyczynek metodologiczny [Elaboration of Climatic Directives for Town Planning as Applied to the City of Baghdad: A Methodological Contribution], Przeglad Geofizyczny, Warsaw, 13(3) pp 293-305, 1968, rec'd Mar 1969. Figs, tables, refs. English summary p 305. DAS M(05) P973a.

Polish

...The characteristics of the climate of Iraq are described using data of the meteorological variables presented on maps and tables. Meteorological recommendations for use in the city planning of Baghdad are presented. The northern and northeastern areas are climatically the most favorable parts of the city. The planning of green protective zones on SW, W, and NW sides is indispensable for reducing wind velocities, increasing humidity and mitigating discomfort caused by sand and dust storms. On the SW side, the green belts along the Euphrates can be used for this purpose. The construction of green belts and water surfaces is discussed in detail. (IID)

JORDAN

86. Haude, W., Witterung und Weizenanbau in Jordanien [Weather and Wheat Growing in Jordan] Meteorologische Rundschau, Berlin, 19(4), Jul/Aug 1966, pp 97-111. Figs, tables, refs. German and English summaries p 97. DAS Pam M(05) M587.

...The dependence on the temperature and the water budget of the growth of wheat in Jordan is investigated. The fluctuations from year to year of the yield are similar to the fluctuations of some of the weather elements. The relation is marked between the amount of yield to the balance of rain (rain minus evapotranspiration) during the climatic time of growth. It becomes especially good in connection with the duration of positive values of the summed daily water balance. The possibility is examined to fix the extension of wheat cultivation according to the meteorological conditions until the beginning or middle of December. The daily observed and summed values of the water balance allow an early well-established prediction of the coming yield to be made. (Author)

German

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87. Jordan, Dept. of Irrigation and Water Power, Rainfall in Jordan 1952/53, 1955/56-(1963/64), Amman. DAS M06.1/569 J82r.

...Monthly rainfall data are given for about 50 stations in Jordan. Both the total amount of rainfall and the number of days with rain $\geq$ 0.1 in. are given. (Pt. Auth. Abs.)

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88. Jordan, Dept. of Statistics, Quarterly Bulletin of Current Statistics. The Hashimite Kingdom of Jordan, Ministry of National Economy, Dept. of Statistics. Third Quarter, 1962- to date, 1963. DLC HA1950.J6A34.

...The issue for the third quarter of 1963 contains weekly and monthly values of the following elements for seven stations: total rainfall, mean humidity,and maximum and minimum temperatures. (VJC)

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89. Jordan, Meteorological Service, Monthly Weather Summary, Jan 1955. - (1962), Amman. DAS M06.1/569 J82we.

...Monthly Climatological data are summarized for about 25 stations. The data include: temperature, mean, mean maximum and minimum; relative humidity; precipitation, days with $\geq$ 0.1 mm,and 24-hr maximum. (Pt. Auth. Abs.)

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90. Jordan, Ministry of National Economy, Statistical Yearbook, 1967, Dept. of Statistics, Amman, No. 18, 1967. (Other issues available back to 1958). (In Arabic and English). Census. J76 A84 1967.

...The chapter on Agricultural Statistics includes climate, a graph illustrating the percentage of yearly rainfall at 6 selected stations versus a standard average (1931-1960), Table 58 gives the yearly rainfall at 17 stations and a standard average (1931-1960), Tables 59, 60, and 61 give the mean monthly, mean maximum, and minimum temperatures from 1961-1967 for Amman, Jerusalem, and Deir Alla. Tables 62-69 give temperature, humidity, and rainfall by weeks and months for 1967 for Amman, Jerusalem, Mafraq, Ma'an, Aqaba, Deir Alla and Jericho. (ALS)

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91. Jordan, Ministry of Transport, Meteorological Department. National Report on Climatological Activities, Rept. to WMO, Amman, Jul 1969, 2 p. IPB Files.

...Reports on past and current activities of the Jordanian Meteorological Department. The report also reveals the establishment of new climatological stations and the adoption of new equipment. Current publications are also listed. (DLB)

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92. Kibardin, R.E., Prognozirovanie urozhaia ozimoi pshenitsy [Forecasting of Winter Wheat Yield] Meteorologiia i Gidrologiia, No. 2, Feb 1969, pp 111-112. Table. DAS M(05) M589.

...Data for Jerusalem and for Amman is used to show that the harvest yield of winter in Jordan is correlated to the hydrothermal coefficient as defined by G.T. Selianinov, i.e., the ratio of total precipitation and the accumulated temperature. It is possible to derive preliminary forecasts of the harvest yield from the hydrothermal coefficient calculated from Oct to Mar. Conditions at the two stations vary, reflecting the effects of the varying amounts of soil moisture accumulated during the winter season. (RB)

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93. Lomas, Jacob, Effect of the Climate on Agricultural Production in the Upper Jordan Valley. Agroclimatological Methods: Proceedings of the Reading Symposium, Univ. of Reading, Jul 23-30, 1966, Paris, UNESCO, 1968, pp 261-268. Figs, tables, eqs. English and French summaries, p 265; 268. DAS M8:63 A28lag.

...The purpose of this paper is to show how relatively small differences in climate have led to the development today of different crop systems throughout the Jordan Valley. Information is given on the climate of the upper Jordan Valley. It is noted that it has been possible to establish significant relationships between various temperature parameters and yield which can be a most useful guide in agricultural planning and agricultural practice. Helpful results were obtained from studies on agrotopoclimatology where data obtained were used for the zoning of vegetable production in Israel. (ES)

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94. Mallah, Ghalig, Jordan Meteorological Department, Vaisala News, 41, Aerological Activities Series, No. 4, Helsinki, 1969, pp 3-5. DAS P Col.

...Contains the history of radiosonde operation in Jordan. The calibration of instruments, types of equipment, and disposition of data are discussed. (DLB)

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95. Schattner, Isaac, The Lower Jordan Valley: A Study in the Fluviomorphology of an Arid Region, Scripta Hierosolymitana, Vol. XI, Hebrew Univ, Jerusalem, 1962, 123 p. DNAL 290Schl.

...In this study an extensive section is devoted to the physiographical factors effecting the Lower Jordan Valley. The areas discussed include parts of Israel and Jordan north of the Dead Sea. A section describing the area climatology is also included. (DLB)

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96. Underhill, H.W., Report to the Government of Jordan on the Establishment of the National Hydrologic Service FAO, EPTA Report 1998, Rome, 1965, 31 p. DNAL 281.9 F 733e.

...Contains basic hydrologic data, gaging-station locations, and water-balance estimates for the country. Many pertinent references to earlier works are included. (Pt. Auth. Abs.)

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97. Zohary, M., Plant Life of Palestine-Israel and Jordan, Ronald Press Company, New York, 1962, 262 p. DLC QK 378.Z 687.

...Examines the topography, soils, and climate in relation to plant ecology. Maps of Israel and Jordan include information on rainfall, soils, and vegetation. (DLB)

LEBANON

98. American University of Beirut, Observatory, Monthly Bulletin, Beirut, 1946-(Jun 1966). DAS M06.0/569 A512mo.

...Contains daily observations (0830L, 1430L, and 2030L) and monthly summaries of pressure, temperature, vapor pressure, relative humidity, cloud amount, and wind direction. Other summarized data include: maximum temperature, minimum temperature, hours of sunshine, and total rain amount. (DLB)

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99. Beirut. Universite' St. Joseph. Observatoire de Ksara. Annales climatologiques de l'observatoire de Ksara [Climatological Annual of the Ksara Observatory] 1957-1961. DAS M06.1/569 B422ac.

French

...Yearbook with meteorological records for 1957-61. Included are hourly observations, means and extremes of pressure, temperature, humidity, daily and monthly precipitation, sunshine and cloud amount, daily wind speed, and monthly wind direction. (Pt. Auth. Abs.)

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100. Beirut. Universite' St. Joseph. Observatoire de Ksara. Valeurs et normales centralisees a l'observatoire de Ksara [Normal Values at the Ksara Central Observatory], 1961. Tables. DAS M82.2/569 B422va.

French

...Monthly and annual observations from 1951-1961, with summary of observations from 1921-50. Meteorological parameters include pressure, temperature, and precipitation amounts. (Pt. Auth. Abs.)

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101. Blanchet, Guy, Le climat de Beyrouth [The Climate of Beirut], Revue de Géographie de Lyon, Lyonr, 40(2), pp 131-158, 1965. Figs, tables, refs. DAS P Col.

French

...With the aid of synoptic maps, graphs, and numerical data, the author presents a detailed analysis of the climate of Beirut on the basis of data obtained at the Beirut International Airport. The contents of this paper comprise the following, viz: a geographical description of the Beirut Area; the meteorological factors and weather types including the characteristics of summer, the westerly perturbations, the eastern Mediterranean, North African and Saharan perturbations and anticyclonic regions; the climatic elements including cloud cover, insolation and atmospheric temperature and humidity, precipitation, storms and hail, and the winds. (ILD)

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102. Lebanon, le Ministere du Plan Direction Centrale de la Statistique, Recueil de Statistiques Libanaises annee 1967 [Compilation of Lebanese Statistics, 1967], 1965 also available, Beirut, [1968], 405 p. DLC HA1950.L4A35 and Census L49 A84.

French

...Contains summarized climatological data for Beirut, Marjeyoun, Rayak, and Cedres (POR 1958-1967). The summarized elements include: winds, temperature, and precipitation. Also included are climograms for each of the above stations. These climograms illustrate the monthly departures from normal precipitation and temperature. (DLB)

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103. Lebanon, le Ministere du Plan, Direction Centrale de la Statistique, Bulletin Statistique Mensuel. [Monthly Statistical Bulletin], Vol. 1, 1963...(Vol. 7, 1969), Beirut, tables. (formerly published by Service de Statistique General as "Bulletin Statistique Trimestriel"). DNAL(DC) 269.8 L493 and Census L49 A51N.

French

...Contains climatological data for a 12-month period preceding each issue. Data include: temperature, monthly averages, monthly maximum, monthly minimum, and monthly normals (1933-1963); monthly average relative humidity; total monthly precipitation; and mean monthly cloudiness. The stations listed are Beirut, Baidar, les Cedres, Marjayoun, Rayack, and Tripoli. (AES)

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104. Lebanon, le Service Meteorologie, Climat du Leban Bulletin Statistique Mensuel [Climate of Lebanon - Monthly Statistical Bulletin] 40e Annee (1967-1968), No. 7, Mar 1968 (most recent issue seen, others available back to 1953), Ksara, 19 p. DLC Orientalia Div., Near East Section.

French

...This monthly weather bulletin reviews the previous month's weather and describes the synoptic situation. Daily temperature, cloudiness, and precipitation statistics are tabulated. The three elements above are considered on a regional or zone basis (coastal, mountain, and interior). Monthly pressure curves showing departure from normal are given for Beirut and Ksara. In addition, soil temperatures are given for depths of 5, 10, 20, 30, 40, 50, 75, and 100 cm. (DLB)

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105. Lebanon, Service de Statistique General, Bulletin Statistique Trimestriel [Tri-Monthly Statistical Bulletin], Ministere de l'economie general, Vol. 1 (1950)... (Vol.14, 1963), Beirut. Now published as Bulletin Statistique Mensuel. DLC HA1950.L4A345 and DNAL(DC)269.8 L49.

French

...Contains, among other statistics, summarized climatological data. The data include temperature (mean in °C), hours of precipitation, and relative humidity. (Pt. Auth. Abs.)

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106. Smith, Harvey H., et al., Area Handbook for Lebanon, prepared by Foreign Area Studies (FAS), The American University, Washington, D.C., DA Pamphlet No. 550-24, Jul 1969, 352 p. 13 tables, 4 figs. Census L49 B19 1969.

...Chapter 2, Physical Environment contains limited information on the climate of Lebanon. Table 1 gives the monthly rainfall (in inches) at Beirut 1963-1967, Table 2 gives monthly precipitation (in inches) of Lebanon 1967, and Table 3 gives mean monthly maximum and minimum temperatures for Beirut, Cedars, Riyag, Marj Uyun, Tripoli, and Baidar for 1967. (ALS)

SYRIA

107. Deeb, R., Synoptic Situations Associated with Swarm Movements Across Syria. World Meteorological Organization, Technical Note No. 69, 1965. pp 217-219. Figs. DAS M(06) W927p.

...A day-by-day description is given of the synoptic situations over the Syrian area during the periods May 1-6, and 10-13, 1961 and May 1-5, 1962. Both occasions were associated with significant locust swarm movements. (AB)

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108. Syria, Meteorological Department, Monthly Climatological Data. 1955-to date. Tables, diagrams. DAS M06.1/569.1 S995mo.

...Contains tabular data for selected stations (from 10 to 68 stations) in Syria presenting monthly summaries with: mean and extreme station pressure and temperature (also mean, max, and min daily temp), mean cloud amount (at 08, 14 and 21 LST), relative humidity (at 08, 14, and 21 LST and mean daily), dew point and soil temperature at 30-, 60- and 100-cm depths; precip totals; sunshine duration and also daily % of possible and max in 1 day; daily mean wind speed and direction; number of days with sunshine, temp with max ≥ 35, ≤ 0°C and min ≤ 0°C, ≤ 5°C, rain ≥ 1, ≥ 5 or ≥ 20 mm, snow hail, sleet, glaze, fog, thunderstorms and dust/sand storms; number of clear days; number of observations

108. (cont)

with: visibility ≤ 200, 1,000, 5,000; wind speed (1-6, 7-16, 17-27, and ≥ 28 kts) and direction (8 pts and calm). Included are coded daily radiosonde observations (at specific hours) at standard (including monthly mean, max and min) and significant levels at Aleppo. Also graphs presenting daily averages by months of temperature and humidity; precipitation totals for selected stations. (MLW)

Textual remarks in both English and Arabic.

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109. Syria, Ministry of Defence, Meteorological Department. National Reports on Climatological Activities. Report to WMO, Ltr. No. 12259/3-1/32, Damascus, 1969, 1 p. IPB Files.

...Reports on the operational status of Syrian climatological stations. Publications and recent method improvements are also listed. (DLB)

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110. Syrian Arab Republic, General Bulletin of Current Statistics, Ministry of Planning, Directorate of Statistics, Damascus, The First Half 1967, Sixteenth Year, (1968) (available back to 1950), mostly tables. (In English and Arabic). Census Sy 8 A5g 1967, No. 1 and DLC HA1941.A33.

...Chapter 1, Physical Features, includes climatic data. Table 1 gives monthly values of atmospheric pressure, hours of sunshine, evaporation, and relative humidity for Aleppo, Damascus, Deir-ez-Zor, Hama, Latakia and Kamistly. Table 2 gives monthly temperatures, (absolute maximum, average minimum, average maximum, average, absolute minimum) for same stations. Table 3 lists precipitation, dust (sand) storms, thunderstorms, hail, snow, rain, precipitation in 24-hrs, monthly total, etc., same stations, year includes July 1966-June 1967. (ALS)

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111. Syrian Arab Republic, Ministry of Planning, Statistical Abstract 1964, 17th ed., Directorate of Statistics, Damascus, 1965, 413 p, tables. DNAL (DC) 269.8 Sy 8S (available for 1967, DLC SY8A841967).

...Contains summarized pressure, total hours of sunshine, average daily evaporation, and relative humidity for 1964 at 16 stations. Temperature is summarized in the following categories: monthly average, absolute maximum, absolute minimum, and deviation from absolute minimum and absolute maximum. Within the precipitation tables the number of days with dust and sandstorms, hail, snow, rain, and thunderstorms are given. The number of occurrences of surface winds within specified ranges of speed and direction is given for 1964. In addition to the climatological data, soil types and groups are given by region. (DLB)

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112. van Liere, W.J., Stratigraphical, Prehistorical, paleo-botanical and faunal evidence of Major Climatic Oscillations in Syria. (In: UNESCO-WMO Symposium on Changes of Climate with Special Reference to the Arid Zones, Rome, Oct 1961, (Provisional Programme and Selected Preprints of Contributions), 5 p. Mimeo. At head of p 1: UNESCO/NS/AZ/590, Rome Symposium Paper No. 20). DAS M77.38 U586cLi.

...An attempt was made to reconstruct climatic oscillations in Syria by studying its paleobotanical and faunal fossils. Prehisterical abundance of paleolithium in the Syrian desert suggests that it was once a rich hunting ground. A number of climatic oscillations are supposed to have occurred in the early Pleistocene. The middle Pleistocene exhibited tectonic stability under tropical conditions. A major climatic oscillation in Syria is believed to be related to a climatic optimum in West Europe. (SE)

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13. ABSTRACT

This bibliography contains 112 references to Environmental Studies concerning four Middle East Countries, Iraq, Jordan, Lebanon, and Syria. Approximately 50 items are general references that pertain to one or more of the subject Countries. Sixteen additional bibliographies of a meteorological and climatological nature are listed. Entries are listed alphabetically by author. A subject index is included for convenience of use.

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